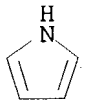
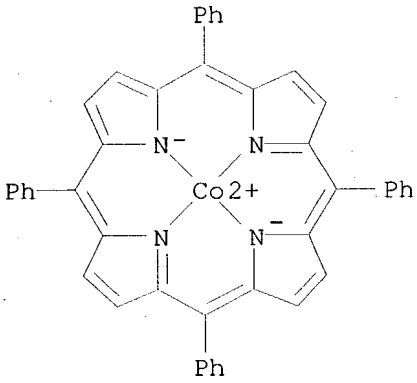
CRN 109-97-7
CMF C4 H5 N



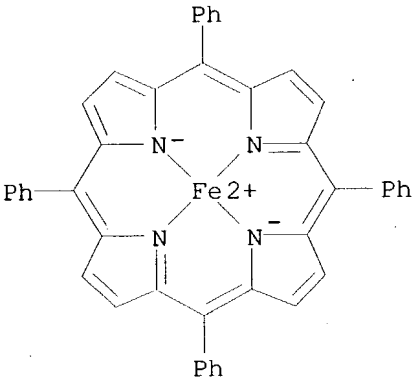
IT **7647-10-1**, Palladium dichloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalysts containing polypyrrole and mol. sieves and, for oxidation of cyclohexane)
RN 7647-10-1 HCAPLUS
CN Palladium chloride (PdCl2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Pd—Cl

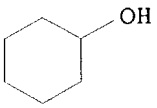
IT **14172-90-8 16591-56-3**
RL: CAT (Catalyst use); USES (Uses)
(catalysts containing, for oxidation of cyclohexane)
RN 14172-90-8 HCAPLUS
CN Cobalt, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



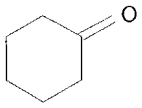

RN 16591-56-3 HCAPLUS
CN Iron, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)




IT **108-93-0P**, Cyclohexanol, preparation **108-94-1P**, Cyclohexanone, preparation **124-04-9P**, Adipic acid, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(improved synthesis of, by oxidation of cyclohexane)
RN 108-93-0 HCAPLUS
CN Cyclohexanol (8CI, 9CI) (CA INDEX NAME)




RN 108-94-1 HCAPLUS
CN Cyclohexanone (7CI, 8CI, 9CI) (CA INDEX NAME)

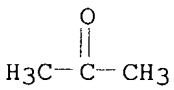



RN 124-04-9 HCAPLUS
CN Hexanedioic acid (9CI) (CA INDEX NAME)

$HO_2C-(CH_2)_4-CO_2H$

IT **110-82-7**, Cyclohexane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, catalysts for)
RN 110-82-7 HCAPLUS
CN Cyclohexane (8CI, 9CI) (CA INDEX NAME)

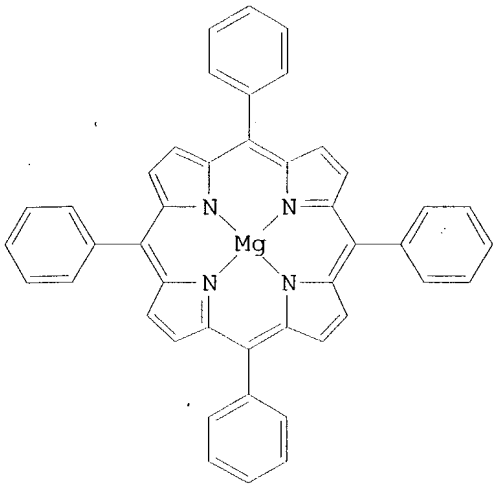
IT **67-64-1**, Acetone, uses
RL: USES (Uses)
(solvent, for oxidation of cyclohexane)
RN 67-64-1 HCAPLUS
CN 2-Propanone (9CI) (CA INDEX NAME)



L43 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:228526 HCAPLUS
DOCUMENT NUMBER: 114:228526
TITLE: Preparation of secondary-butyltoluene hydroperoxide
INVENTOR(S): Ono, Hiroyasu; Yorozu, Kiyotaka
PATENT ASSIGNEE(S): Mitsui Petrochemical Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 03011058 | A2 | 19910118 | JP 1989-146109 | 19890608 <-- |

PRIORITY APPLN. INFO.: JP 1989-146109 19890608 <--
OTHER SOURCE(S): CASREACT 114:228526; MARPAT 114:228526
GI



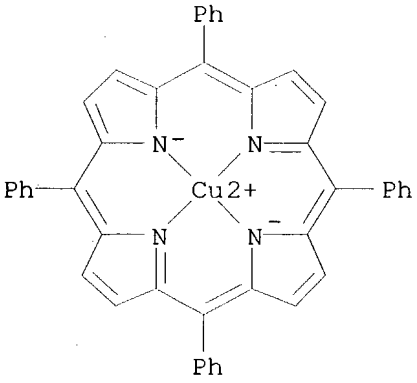

III

AB The title compound is prepared in high selectivity to tertiary hydroperoxide (I) by treatment of EtCHMeC6H4Me (II) with O-containing gas in the presence of ≥1 complex of alkaline earth metal or transition metal with tetraphenylporphyrins. A mixture of II, an aqueous Na2CO3 solution, and porphyrin-Mg2+ complex III was heated under bubbling with air to 120° and I was added to initiate the reaction, concentration of I in the reaction product after 3 h was 12.0%, vs. 1.0% for a control without addition of III.

IT **14172-91-9 14172-92-0 14640-21-2 14705-63-6 16456-81-8**
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for oxidation of sec-butyltoluene, tertiary hydroperoxide from)

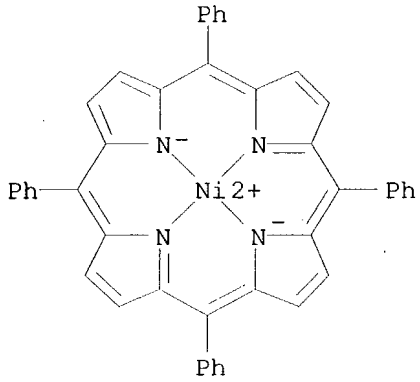
RN 14172-91-9 HCAPLUS

CN Copper, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)

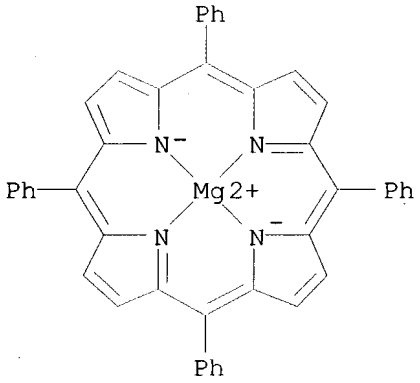



RN 14172-92-0 HCAPLUS

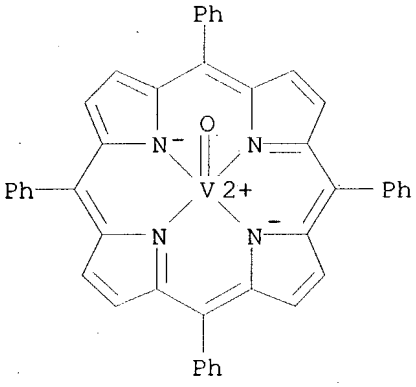
CN Nickel, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



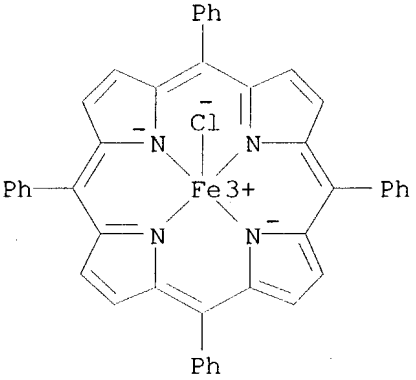

RN 14640-21-2 HCAPLUS
CN Magnesium, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)




RN 14705-63-6 HCAPLUS
CN Vanadium, oxo[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI) (CA INDEX NAME)

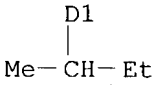


RN 16456-81-8 HCAPLUS
CN Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI) (CA INDEX NAME)



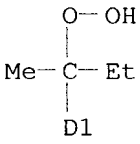
IT **26571-04-0**, sec-Butyltoluene
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, tertiary hydroperoxide from, catalysts for)
RN 26571-04-0 HCAPLUS
CN Benzene, methyl(1-methylpropyl)- (9CI) (CA INDEX NAME)

D1—Me



IT **113588-16-2P**, 2-Tolyl-2-hydroperoxybutane
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by catalytic oxidation of sec-butyltoluene)
RN 113588-16-2 HCAPLUS
CN Hydroperoxide, 1-methyl-1-(methylphenyl)propyl (9CI) (CA INDEX NAME)

D1—Me



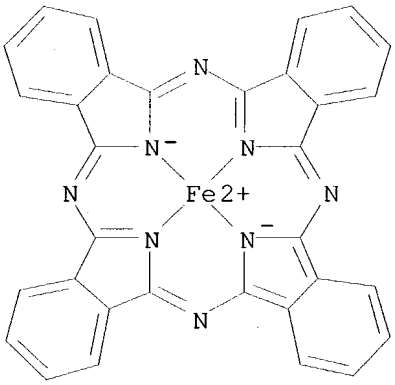
L43 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:188007 HCAPLUS
DOCUMENT NUMBER: 114:188007
TITLE: Production of detergent range alcohols and ketones from alkanes using porphyrin catalysts
INVENTOR(S): Sanderson, John R.; Marquis, Edward T.; Payton, Howard F.
PATENT ASSIGNEE(S): Texaco Chemical Co., USA
SOURCE: U.S., 11 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 4978799 | A | 19901218 | US 1989-428812 | 19891030 <-- |
| EP 426290 | A2 | 19910508 | EP 1990-310155 | 19900917 <-- |
| EP 426290 | A3 | 19910925 | | |
| R: DE, FR, GB, IT | | | | |
| JP 03169831 | A2 | 19910723 | JP 1990-290985 | 19901030 <-- |
| PRIORITY APPLN. INFO.: | | | US 1989-428701 | 19891030 <-- |
| | | | US 1989-428703 | 19891030 <-- |
| | | | US 1989-428812 | 19891030 <-- |

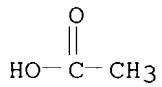
AB The reaction of C10-18 alkanes with a hydroperoxide, especially tert-BuOOH or cumene hydroperoxide (I), in the presence of a transition metal (especially Fe, Mn, or Co) porphyrin catalyst gives alcs. and ketones with minimal formation of byproducts. A mixture of dodecane 50.0, chloroferric phthalocyanine 0.10, and imidazole 0.07 g was treated slowly at 30° with 80% I to give 5.02% dodecanones and 1.42% dodecanols.
IT **132-16-1**, Ferrous phthalocyanine **142-71-2**, Cupric acetate **147-14-8**, Cupric phthalocyanine **288-32-4**, Imidazole, uses and miscellaneous **536-80-1**, Iodosylbenzene

**1643-19-2**, Tetrabutylammonium bromide **4328-13-6**,
Tetrahexylammonium bromide **7601-89-0**, Sodium perchlorate
**12030-88-5**, Potassium **superoxide** **12676-27-6**
**13395-16-9**, Cupric acetylacetonate **14172-90-8**
**14285-56-4**, Chloroferric phthalocyanine **16456-81-8**
**58356-65-3** **60385-96-8**
RL: CAT (Catalyst use); USES (Uses)
(**catalysts**, for oxidation of alkanes to alcs. and ketones)

RN 132-16-1 HCAPLUS
CN Iron, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



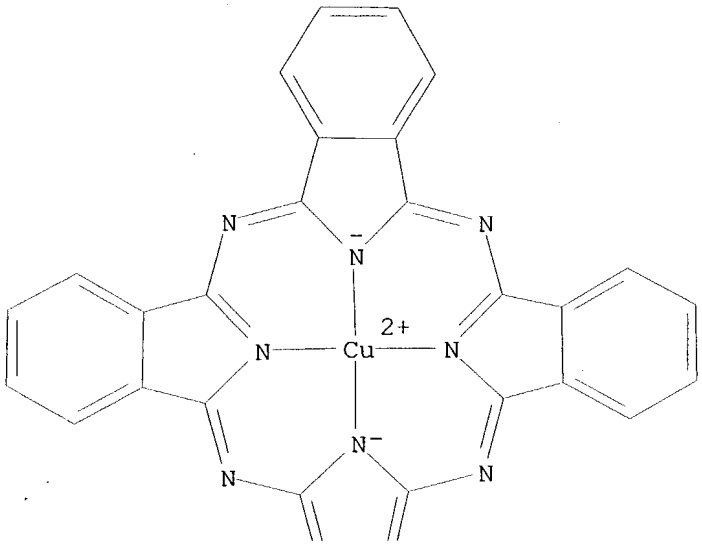

RN 142-71-2 HCAPLUS
CN Acetic acid, copper(2+) salt (8CI, 9CI) (CA INDEX NAME)



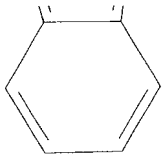

●1/2 Cu(II)

RN 147-14-8 HCAPLUS
CN Copper, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

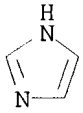
PAGE 1-A




PAGE 2-A



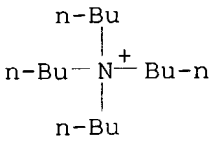
RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)




RN 536-80-1 HCAPLUS
CN Benzene, iodosyl- (9CI) (CA INDEX NAME)

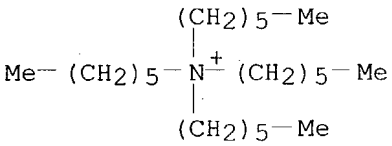
O═I—Ph

RN 1643-19-2 HCAPLUS
CN 1-Butanaminium, N,N,N-tributyl-, bromide (9CI) (CA INDEX NAME)



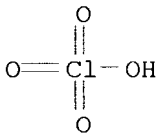
● $Br^-$

RN 4328-13-6 HCAPLUS
CN 1-Hexanaminium, N,N,N-trihexyl-, bromide (9CI) (CA INDEX NAME)



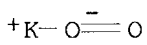
● $Br^-$

RN 7601-89-0 HCAPLUS
CN Perchloric acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



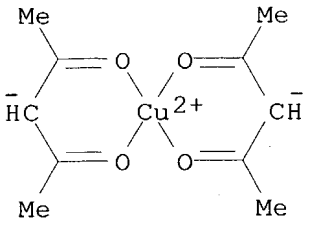
● Na

RN 12030-88-5 HCAPLUS
CN Potassium superoxide (K(O2)) (9CI) (CA INDEX NAME)

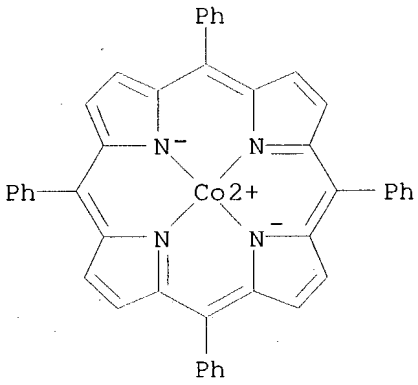


RN 12676-27-6 HCAPLUS
CN Boric acid, lithium salt (9CI) (CA INDEX NAME)

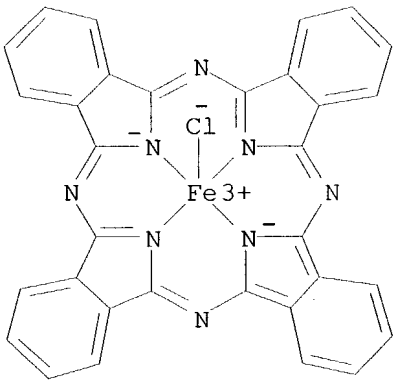
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 13395-16-9 HCAPLUS
CN Copper, bis(2,4-pentanedionato-κO,κO')-, (SP-4-1)- (9CI) (CA INDEX NAME)



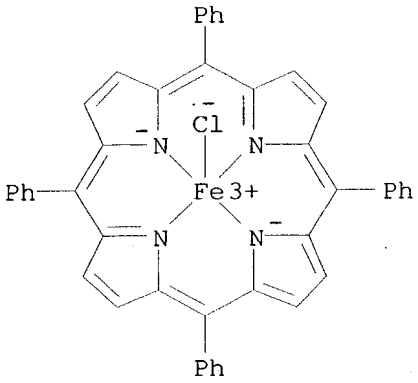
RN 14172-90-8 HCAPLUS
CN Cobalt, [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-4-1)- (9CI) (CA INDEX NAME)



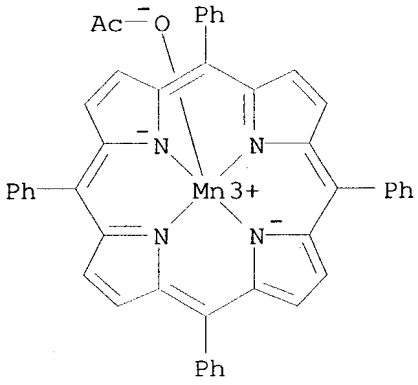
RN 14285-56-4 HCAPLUS
CN Iron, chloro[29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-5-12)- (9CI) (CA INDEX NAME)



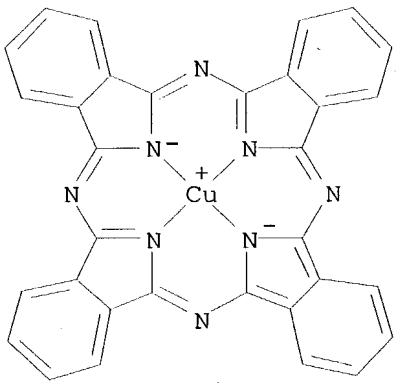
RN 16456-81-8 HCAPLUS
CN Iron, chloro[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI) (CA INDEX NAME)



RN 58356-65-3 HCAPLUS
CN Manganese, (acetato-κO)[5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-κN21,κN22,κN23,κN24]-, (SP-5-12)- (9CI) (CA INDEX NAME)



RN 60385-96-8 HCAPLUS
CN Cuprate(1-), [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,κN32]-, (SP-4-1)- (9CI) (CA INDEX NAME)



IT **27342-88-7P**, Dodecanol **35655-31-3P**, Dodecanone
RL: PREP (Preparation)
(manufacture of, from dodecane, catalysts for)
RN 27342-88-7 HCAPLUS
CN Dodecanol (8CI, 9CI) (CA INDEX NAME)

Me— $(CH_2)_{10}$ —Me

D1—OH

RN 35655-31-3 HCAPLUS
CN Dodecanone (9CI) (CA INDEX NAME)

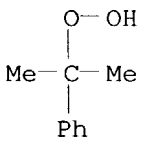
Me— $(CH_2)_{10}$ —Me

D2=O

IT **75-91-2**, tert-Butyl hydroperoxide **80-15-9**, Cumene hydroperoxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation by, of alkanes to alcs. and ketones)
RN 75-91-2 HCAPLUS
CN Hydroperoxide, 1,1-dimethylethyl (9CI) (CA INDEX NAME)

HO—O—Bu-t

RN 80-15-9 HCAPLUS
CN Hydroperoxide, 1-methyl-1-phenylethyl (9CI) (CA INDEX NAME)



IT **112-40-3**, Dodecane
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, to alcs. and ketones, catalysts for)
RN 112-40-3 HCAPLUS
CN Dodecane (8CI, 9CI) (CA INDEX NAME)

Me— $(CH_2)_{10}$ —Me

L43 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1990:118456 HCAPLUS

DOCUMENT NUMBER: 112:118456
TITLE: Method of preparing substituted cyclic carboxylic acids by oxidation of cyclic hydrocarbons with air or oxygen using metal complex catalysts
INVENTOR(S): Svensson, Nils A.
PATENT ASSIGNEE(S): Nobel Chemicals AB, Swed.
SOURCE: U.S., 3 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 4866204 | A | 19890912 | US 1988-156036 | 19880216 <-- |
| SE 8700657 | A | 19880819 | SE 1987-657 | 19870218 <-- |

PRIORITY APPLN. INFO.: SE 1987-657 19870218 <--

AB Substituted cyclic carboxylic acids, specifically benzoic and phthalic acids, are prepared by oxidation of corresponding cyclic hydrocarbons with air or O in the liquid phase in an organic solvent under alkaline conditions using metal complex catalysts. The catalysts are Fe, Ni, Mn, or V tetraphenylporphines, or Ni, Cu, Co, Mn, Cr, or Ti phthalocyanines or acetylacetonates, or their mixts. Thus, air was passed forcefully into a mixture of 100 mL MeOH, 34.0 g KOH, 13.7 g o-nitrotoluene, and 10 mg freshly prepared Fe tetraphenylporphine chloride at 25° for 18 h to give o-nitrobenzoic acid in 95% yield.

IT **147-14-8**, Copper phthalocyanine **3264-82-2**, Nickel acetylacetonate **3317-67-7**, Cobalt phthalocyanine **13395-16-9**, Copper acetylacetonate **14024-48-7** **14055-02-8** **14172-92-0**, Nickel tetraphenylporphine **14284-89-0**, Manganese acetylacetonate **14284-96-9** **14285-60-0**, Chromium phthalocyanine **14325-24-7**, Manganese phthalocyanine **14705-63-6** **16591-56-3**, Iron tetraphenylporphine **21679-31-2**, Chromium acetylacetonate **31004-82-7**, Manganese tetraphenylporphine **52324-93-3**, Titanium phthalocyanine **125491-21-6**
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for oxidation of cyclic hydrocarbons to cyclic carboxylic acids)

RN 147-14-8 HCAPLUS
CN Copper, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.ka ppa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

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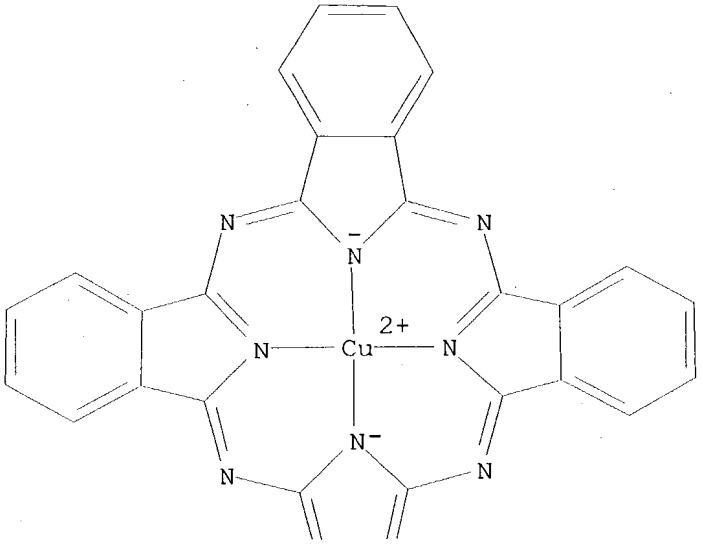
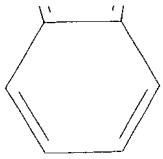
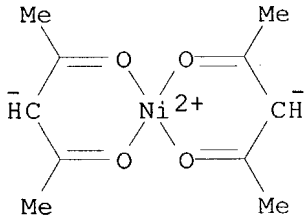



PAGE 2-A



RN 3264-82-2 HCAPLUS
CN Nickel, bis(2,4-pentanedionato-κO,κO')-, (SP-4-1)- (9CI) (CA INDEX NAME)




RN 3317-67-7 HCAPLUS
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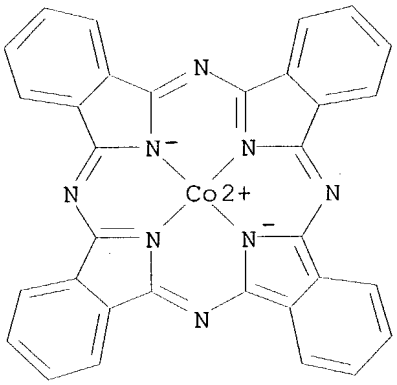

RN 13395-16-9 HCAPLUS
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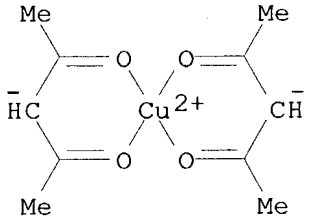

RN 14024-48-7 HCAPLUS
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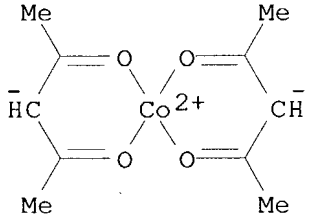

RN 14055-02-8 HCAPLUS
CN Nickel, [29H,31H-phthalocyaninato(2-)-κN29,κN30,κN31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)